

Reset IC with Selectable Voltages

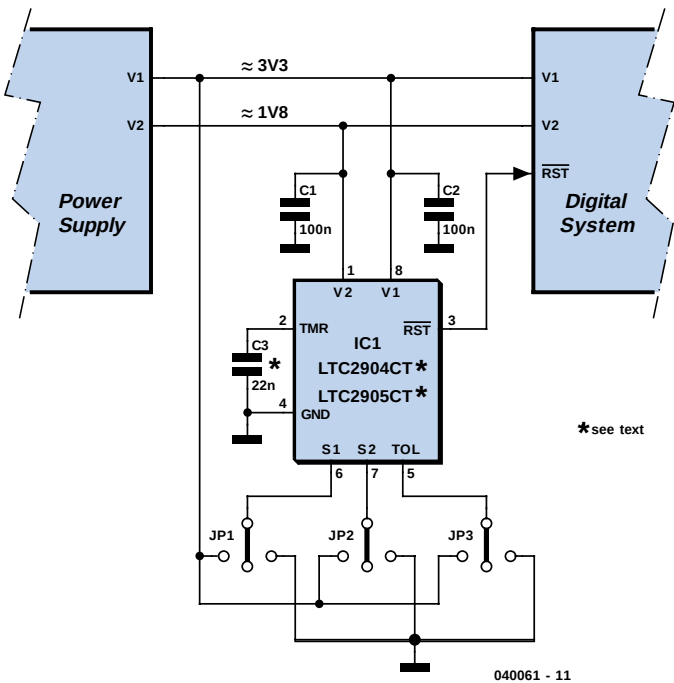
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Modern digital systems work with a supply voltage of +3.3 V, and sometimes they also need an additional, lower supply voltage, such as 1.8 V, 1.5 V or even 1.2 V. To generate a reset signal from these two voltages, it was previously necessary to use a separate reset IC for each voltage, and each IC had to be individually dimensioned for the voltage it monitored.

The Linear Technology LTC2904/5 (www.linear.com/pdf/29045f.pdf) can be programmed for two voltages. The voltages are selected using the S1, S2 and TOL inputs according to whether they are connected to V1, connected to ground or left open. The IC can be configured for the voltages shown in the table.

The tolerance for the two voltages can be set using the TOL pin. The effect this has on the internally determined reset threshold

S1	S2	V1	V2
V1	V1	5.0 V	3.3 V
open	ground	3.3 V	2.5 V
V1	open	3.3 V	1.8 V
open	V1	3.3 V	1.5 V
open	open	3.3 V	1.2 V
ground	ground	2.5 V	1.8 V
ground	open	2.5 V	1.5 V
ground	V1	2.5 V	1.2 V
V1	ground	2.5 V	1.0 V



is that the larger the tolerance, the lower the internal threshold is set.

The $\overline{\text{RST}}$ output (pin 3) is an open-drain output. It goes Low when at least one of the two voltages drops below the programmed threshold level. There is a time delay before the reset signal is de-activated after the voltages rise above the threshold level. With the LTC2904, this delay has a fixed value of 200 ms, while with the LTC2905 it depends on the value of the capacitor connected to the TMR pin:

$$t_{\text{delay}} = 9 \text{ ms/nF}$$

This expression is valid for delay times between 1 ms and 10 s.

In place of the TMR connection (pin 2), the LTC2904 has an open-drain $\overline{\text{RST}}$ output that is complementary to the $\overline{\text{RST}}$ output, which means it is active High.

TOL	Tolerance
V1	5 %
open	7.5 %
ground	10 %